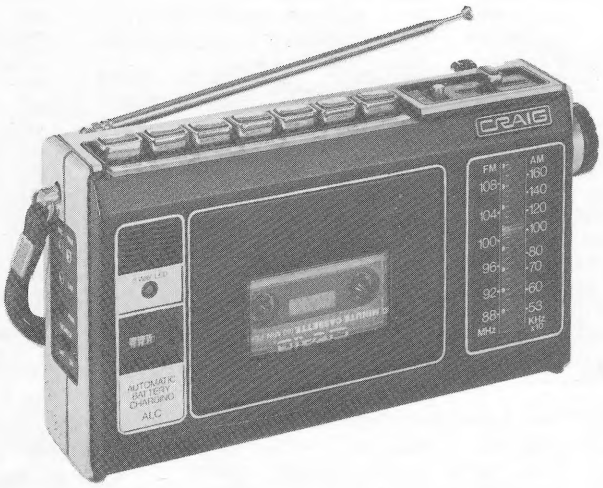
J422

SERVICE MANUAL

CRAIG® J422

COMPACT PORTABLE CASSETTE RECORDER WITH AM/FM RADIO



SPECIFICATIONS

TAPE SPEED	1-7/8 ips
REWIND TIME	100 Sec. (C-60 cass)
WOW and FLUTTER	Better than 0.35% rms
OUTPUT POWER	300 mW average continuous power
SIGNAL/NOISE RATIO	Better than 35 dB
FREQUENCY RESPONSE	100 to 7000 Hz
RECORD SYSTEM	Half-Track, AC bias
ERASE SYSTEM	DC
INPUTS	Microphone, 10k Ohms, —70 dBm remote control switch
OUTPUTS	Earphone/Ext. speakers 8 Ohms
POWER SOURCE	4 AA-size cells or AC adaptor
TUNER FREQUENCY RANGE	AM: 540 - 1600 kHz
	FM: 88 - 108 MHz
IF	AM: 455kHz
	FM: 10.7MHz

HEAD AZIMUTH ADJUSTMENT

Insert a standard azimuth test tape with recorder in PLAY mode, adjust azimuth adjust screw (Ref. 29 on MECHANISM EXP. VIEW) for maximum output.

PARTS PRICE LIST

SUBJECT TO CHANGE WITHOUT NOTICE. USE ALL AVAILABLE NUMBERS AND COMPLETE DESCRIPTION WHEN ORDERING, INCLUDING MODEL NUMBER

* * * "THESE PRICES HAVE BEEN REVISED AS OF 03-31-77." * * *

Ref. No.	Craig Key No.	Description	Mfr's Sugg Ret. Price
		PACKAGING	
	J422001	Individual Carton	1.60
	J422002	Styrofoam, Right	.65
	J422003	Styrofoam, Left	.65
	C9221	AC Adaptor	7.95
		CABINET & CHASSIS	
201	J422010	Front Case	3.45
202	2629013	Condenser Microphone	2.70
203	2629015	Microphone Holder	.30
204	2629014	Cushion, Mic Condenser	.25
205	2629029	Reflector Tape	.25
207	J422011	Trim Plate, Function Index	.30
208	J422012	Main Top Trim Plate	1.20
209	J422013	Index Plate, Volume	.35
210	2629026	CRAIG Label	.85
211	J422014	Dial Scale	1.30
212	J422015	L.E.D. Trim Plate	.25
213	J422016	Trim Plate, ALC	.25
214	J422017	Side Trim Plate (A)	.60
215	J422018	Side Trim Plate (B)	.60
251	J422019	Rear Case (B)	3.90
511	J422020	Battery Lid (Cover)	.90
252	J422021	Rod Antenna	3.75
253	J422022	Holder, Antenna Mtg	.25
254	J422023	Bracket, Case Mtg	.25
255	2629034	Ribbon	.25
256	2629033	Stopper, Ribbon	.25
259	J422024	Side Trim Plate (C)	.60
260	J422025	Side Trim Plate (D)	.60
	J422070	Ass'y, Amp PCB W/Comp	19.00
261	J422026	Rating Plate (Model Code)	.30
262	J422027	Carrying Strap	1.10
301	2629031	Speaker	2.55
302	J422028	Cloth, Dust Cover	.25
304	J422029	Ass'y, Cassette Lid	2.50
306	J422030	Knob, Volume Control	.80
309	J422031	Support, Antenna Mtg	1.20
315	J422032	Knob, Tuning	1.10
317	J422033	Battery Seal	.25
401	J422034	Ass'y, Tuner P.C.B.W/Comp	19.00
402	NSP	Shield Plate, Tuner	**
403	NSP	Shield Case	**
404	NSP	Pin Terminal	**
405	J422035	Tuner Chassis (Plastic)	1.25
406	J422036	Tuning Shaft	.50
408	J422037	Pulley, Dial String Guide	.25
410	J422038	Rivet, M2x8	.25
411	J422039	Dial Drum	.40
414	J422040	Back Plate, Dial Scale	.75
417	J422041	Spring, Dial String	.25
418	NSP	Eyelet, 1.5x3 mm	.25
419	J422042	Dial Pointer	.65
701	J422043	Board W/ACCESSORY Jacks	2.34

A PRODUCT OF CRAIG CORPORATION

(PARTS LIST CONTINUED)

MECHANISM

Ref. No.	Craig Key No.	Description	Mfr's Sugg Ret. Price
1	J422044	Ass'y, Button Mechanism	8.95
7	2629051	Lever, Fast Forward	.65
8	2629052	Base Set, Idler	.65
9	2629053	Idler, F. Fwd	.60
10	2629054	Spr, Idler Lever	.25
11	2629099	Spring, F.Fwd Lever	.25
16	2629061	Base, Clutch	.45
17	2629062	Idler, Take-Up	.60
18	2629090	Spring, Take-Up Idler	.25
19	J422045	Spacer, Release Lever	.25
22	J422046	R/P HEAD	3.95
23	2626038	ERASE HEAD	2.80
24	2626033	Tension Pick-Up	.25
25	2629080	Spr, Head Azimuth Adj.	.25
26	NSP	Wire Clamp	**
30	2629082	Release Lever	.30
31	J422047	Cassette Support	1.50
33	2629091	Spacer, Power Switch	.25
34	2629098	Micro Switch, Power (S6)	1.55
35	2629089	Plate Spr, Power Sw Actuator	.25
36	NSP	Chassis Support	**
41	2629055	Lever, Rewind	.30
42	2626062	Idler, Rewind	.45
43	J422048	Plate Spr, Record Sw Actuator	.25
44	2629077	Spring, Safety Lever	.25
48	J422049	Base Plate, Reel	1.05
49	2629059	Reel Spindle	1.25
52	2629060	Cap, Reel Spindle	.25
54	NSP	Lead Clamp	**
55	2629066	Brake	.25
56	2629067	Rubber Pad, Brake	.25
57	2629081	Spring, Brake	.25
62	2629063	Base, Pinch Roller	.50
63	2626041	Pinch Roller	.95
64	2629101	Spring, Release Lever	.25
65	2629100	Spring, Pinch Roller	.25
69	2629086	Plate Spr, Cassette Guide	.25
71	2629064	Eject Mechanism	1.55
72	J422050	Push Button Knob	.85
74,74A	J422051	MOTOR W/Governor PCB	13.00
75	2629070	Motor Pulley	.55
77	J422052	Battery Case	1.05
78	2629071	Rubber Bushing, Motor Mtg	.25
79	2629072	Collar	.25
80	2628018	Tape Counter	5.05
81	J422053	Plate Spring, Cass Hold	.25
82	2629074	Safety Lever	.25
83	2629075	Battery Terminal (+)	.25
84	2629076	Spr, Battery Terminal(-)	.25
93	J422054	BELT, Counter	.75
94	J422055	Base, Flywheel	1.10
95	J422056	Pulley, Drive Belt	.45
100	J422057	FLYWHEEL	2.20
101	2626051	Bearing, Flywheel Base	.25
102	J422058	BELT, Drive	.95
104	J422059	Collar Flywheel Capstan	.25
107	J422060	Plastic Mtg, VOL & SW	2.05
108	J422061	Slide Volume Cont, 10k	1.70
109	J422062	Push Switch, PAUSE	1.60
110	J422063	PCB, Select Switch	.30
111	J422064	Slide Switch, SLEEP/RAD/TAPE	1.50
112	J422065	Veil, Volume Control	.25
116	J422066	Speaker Holder	.45

MISCELLANEOUS & ELECTRICAL

S1	J422064	Slide Sw, SLEEP/RADIO/TAPE	1.50	S5	J422062	Push Sw, PAUSE	1.60
S2	J422067	R/P Switch	1.20	S6	2629098	Micro Switch, POWER	1.55
S3	J422068	Slide Sw, Band Select	.85	VR1	J422061	Slide Volume Cont, 10k	1.70
S4	J422069	Slide Sw, MONITOR	.75	R202	J422009	Resistor W/Coil, 4.6 Ohm ¼W	.75
VR201	J422008	Semi-Var Resistor, 500 Ohms	.75				

CHOKES, COILS, FILTERS & TRANSFORMERS

T1	J422071	FM IFT	.95	L2	J422078	FM RF Coil	.40
T2	J422072	FM IFT	1.05	L3	J422079	FM RF Coil	.40
T3	J422073	FM IFT	1.05	L4	J422080	FM Coil	.60
T4	J422074	AM IFT	.95	L5	J422081	AM Bar Antenna	2.10
T5	J422075	AM IFT	.95	L6	J422082	AM RF Coil	.85
T6	J422076	AM IFT	.95	L101	J422083	Inductor, LF1-100k	.50
T101	2626119	Imput Transformer	1.15	VC1	J422084	Variable Capacitor(tuner)	4.60
L1	J422077	FM RF Coil	.40	CF1	J422085	Ceramic Filter	1.20

SEMICONDUCTORS

Q1,3	2SC1675	Transistor	.95	IC1	AN210	I.C., AMP	3.55
Q2	2SC785	"	1.20	D1	HV80	Diode	.60
Q101	2SC1312	"	.95	D2	ITT410	"	.85
Q102,103	2SC711	"	.95	D3,4,5	1N60	"	.45
Q104,107	2SC711		1.05	D102	1N60	"	.45
Q108,109	2SC711	"	.95	D101	WG1010A	"	.40
Q105,106	2SB187	Transistor	1.85	D103	OLD415	L.E.D.	.95
TH1,2	TH50	Thermistor	.85	D201,202	HV23G	Diode	.75
Q201	2SB324	Transistor	1.10	Q202	2SC828	Transistor	1.70

RESISTORS, CARBON, OHMS, ±10%, 0.25¢ OR NOTED

Ref No.	Description	Ref. No.	Description	Ref. No.	Description	Ref. No.	Description
R23,27	10 Ohms, ¼W	R204	270 Ohms, ¼W	R205,207	1.8k Ohms, ¼W	R110,120	12k Ohms, ¼W
R122,130	10 Ohms, ½W	R10,11,26	330 Ohms, ¼W	R208	1.8k " "	R146	12k " "
R143	10 " "	R132	470 " "	R24,103	2.2k " "	R107	22k " "
R203	12 " "	R1,201	560 " "	R112,125	2.2k " "	R138	27k " "
R129	15 " "	R3,21,24	680 " "	R141	2.2k " "	R140	39k " "
R124	47 " "	R126,127	680 " "	R102,113	3.3k " "	R4,139	47k " "
R8	56 " "	R14,108	820 " "	R144	3.3k " "	R119,133	56k " "
R22	68 " "	R12,13	1k " "	R206	3.9k " "	R145	56k " "
R5,131,137	100 Ohms, ¼W	R15,16	1k " "	R6,117	4.7k " "	R32	82k " "
R123	120 " ¼W	R17,18	1k " "	R2,19	5.6k " "	R109	100k " "
R128	150 " "	R28,30	1k " "	R20,105	5.6k " "	R114	180k Ohms, ¼W
R121	180 " "	R101,106	1k " "	R33	6.8k " "	R7,9,111	220k " "
R118,136	220 " "	R115	1k " "	R31,142	8.2k " "	R116	470k " "
		R135	1.2k Ohms, ¼W	R29,134	10k " "	R147	47 Ohms, ½W

NSP: Non-Serviceable Part

CAPACITORS

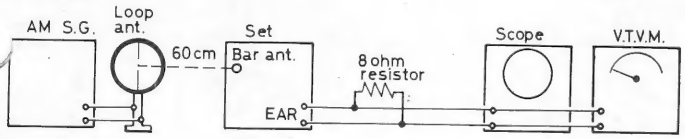
Ref. No.	Description		Ref. No.	Description	
C32	Ceramic,	3p	C101	Ceramic,	0.047uF/50V
C7,10,13	"	5pF/50V	C104,124	Mylar,	0.0022uF/50V
C2,12	"	12pF/50V	C29	"	0.0068uF/50V
C5	"	18pF/50V	C31,39,40	"	0.01uF/50V
C1	"	30pF/50V	C111	"	0.015uF/50V
C9	"	33pF/50V	C20,23,25	"	0.022uF/50V
C130	"	45pF/50V	C103	"	0.03uF/50V
C19	"	82pF/50V	C102	"	0.1uF/50V
C109	"	100pF/50V	C106,113,115,123	Electrolytic,	1uF/50V
C107,114	"	220pF/50V	C125,127	"	1uF/50V
C8	"	330pF/50V	C21,28,34,41	"	4.7uF/25V
C3,11,15,26,27	"	0.0047uF/50V	C110,112,126	"	10uF/10V
C118,119,120	"	0.01uF/50V	C108	"	33uF/10V
C4,6,14,16,17	"	0.022uF/50V	C105,122	"	220uF/6.3V
C18,22,30,33	"	0.022uF/50V	C24,117,121	"	220uF/10V
C35,36,37,38	"	0.022uF/50V	C116,128,129	"	470uF/10V

HARDWARE, 0.25¢ OR NOTED

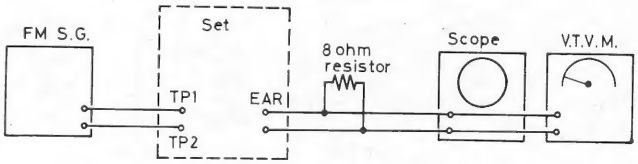
Ref. No.	Description	Ref. No.	Description	Ref. No.	Description	Ref. No.	Description
2	Steel Ball, M2	29	Scr, CH Hd M2x5	90	Blk Scr, FH M2x6	310	Scr, PH M2x6x5
5	Washer, M2x5x0.5	32	Scr, PH M2x5	91	Hex Nut, M2	311	Tapp Scr, M2.6x6
6	Screw, PH M2x3	37	Hex Nut, M2	99	Scr, PH M2.6x4	312	Tapp Scr, M2.6x8
12,96	Nyl Wshr, M2.1x4x.3	39	Scr, PH M2x12	114	Scr, PH M2.6x7	313	Scr, FH M2.6x6
	E Ring, M1.5	40	Lug Washer, M2.2	206	Tapp Scr, M2x6	314	Blk Scr, FH M2.6x8
14	E Ring, M2	53	Blk Scr, FH M2x4	257	Scr, FH M2.6x6	407	E Ring, M3
15	E Ring, M2.5	66	Nyl Wshr, M2x5x0.5	258	Tapp Scr, M2.6x6	409	Washer, M2.2
20	Washer, M2	76	Pulley Scr, M2x3	263	E Ring, M3	412	Washer, M2.6
21	Lug, Wire Clamp	86	Wsher, M2.1x6x0.5	601	Nex Nut, M5	413	Scr, PH M2.6x6
27	Washer,M2.1x6x0.3	88	Scr, PH M2x7	602	Lock Wshr, M5.2	415	Tapp Scr, M2.6x6
28	Scr, PH M2x6	89	Tapp Scr, PH M2x5	603	Lug Wshr, M5.3	416	Dial String,M3x600

ALIGNMENT PROCEDURE AND EQUIPMENT CONNECTION

AM RF



FM RF



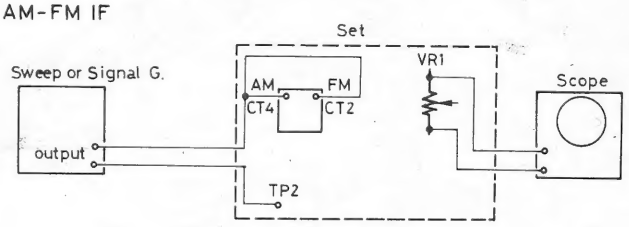
AM IF, Coverage & Tracking

STEP	S.G. FREQ'CY SETTING	TUNING GANG	ADJUSTMENT
1	455kHz	Fully Closed	Adjust T4,T5,T6 for Max. Output
2	515kHz		Adjust L6 for Max. Output
3	1650kHz		Adjust CT4 for Max. Output
4	620kHz	Dial pointer to 1400kHz	Adjust L5 for Max. Output
5	1400kHz	Dial pointer to 620 kHz	Adjust CT3 for Max. Output
6	Repeat adjustments until no further improvement is noted.		

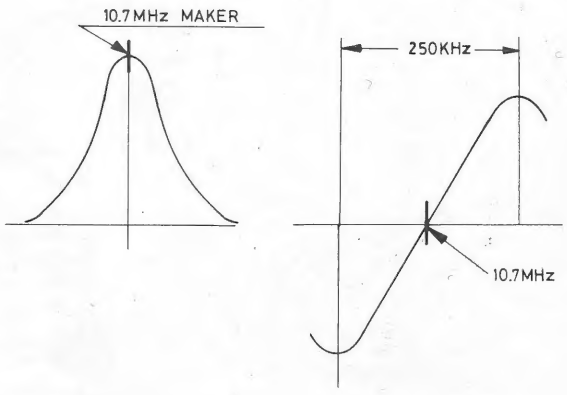
FM IF, Coverage & Tracking

1	10.7MHz	Fully Closed	Turn the core of T1 to a detuned position.
2			Adjust T2 and T3 for maximum gain with symmetrical curve centered at 10.7 MHz marker.
3			Adjust T1 for symmetrical "S" curve centered at 10.7MHz marker.
4	87MHz	Fully Closed	Adjust L4 for Maximum Output
5	109MHz	Fully Open	Adjust CT2 for maximum Output
6	90MHz	Dial pointer to 90 MHz	Adjust L2 for maximum Output
7	106MHz	Dial Pointer to 106 MHz	Adjust CT1 for maximum output
8	Repeat adjustments until no further improvement is noted.		

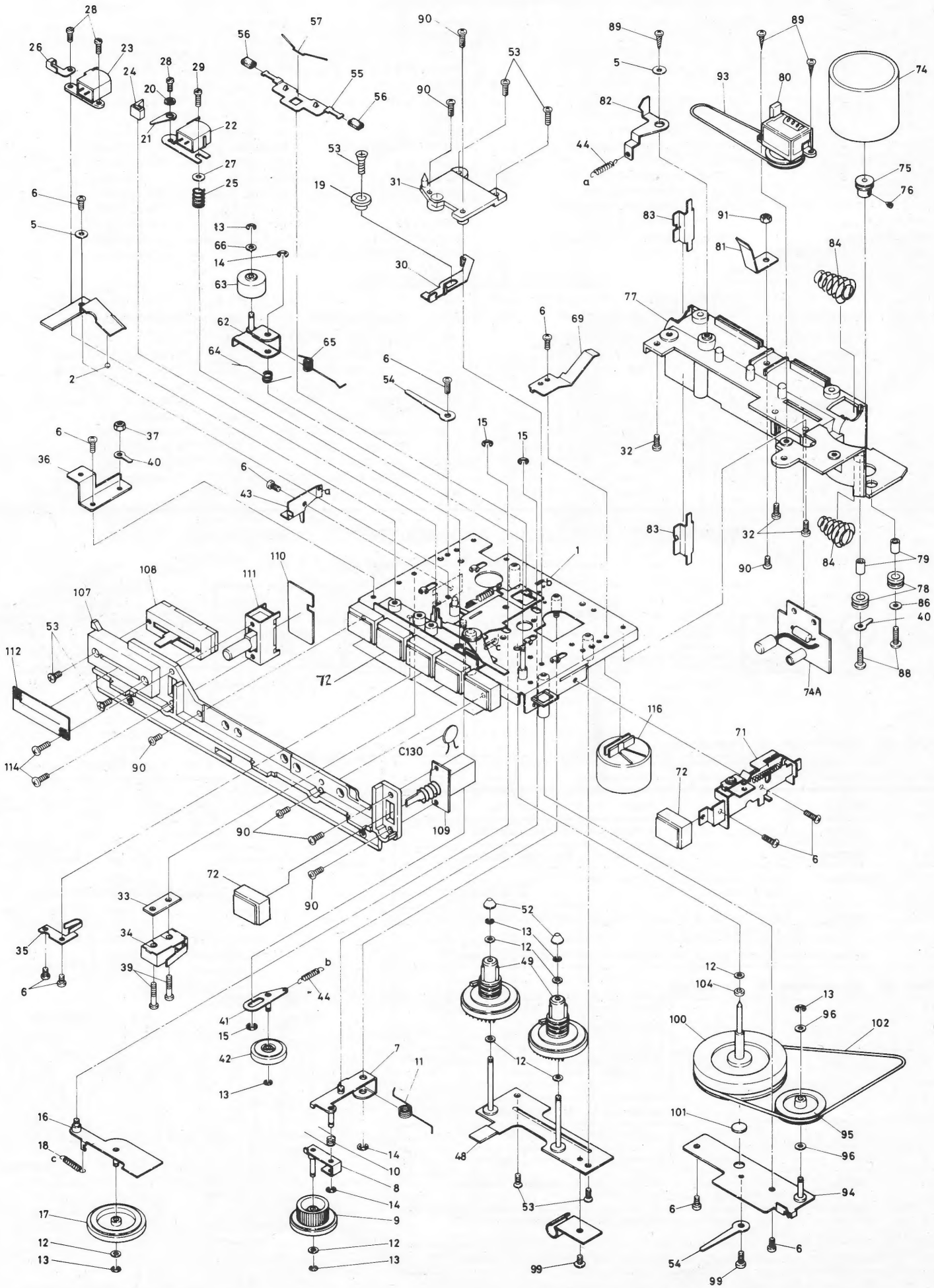
AM-FM IF



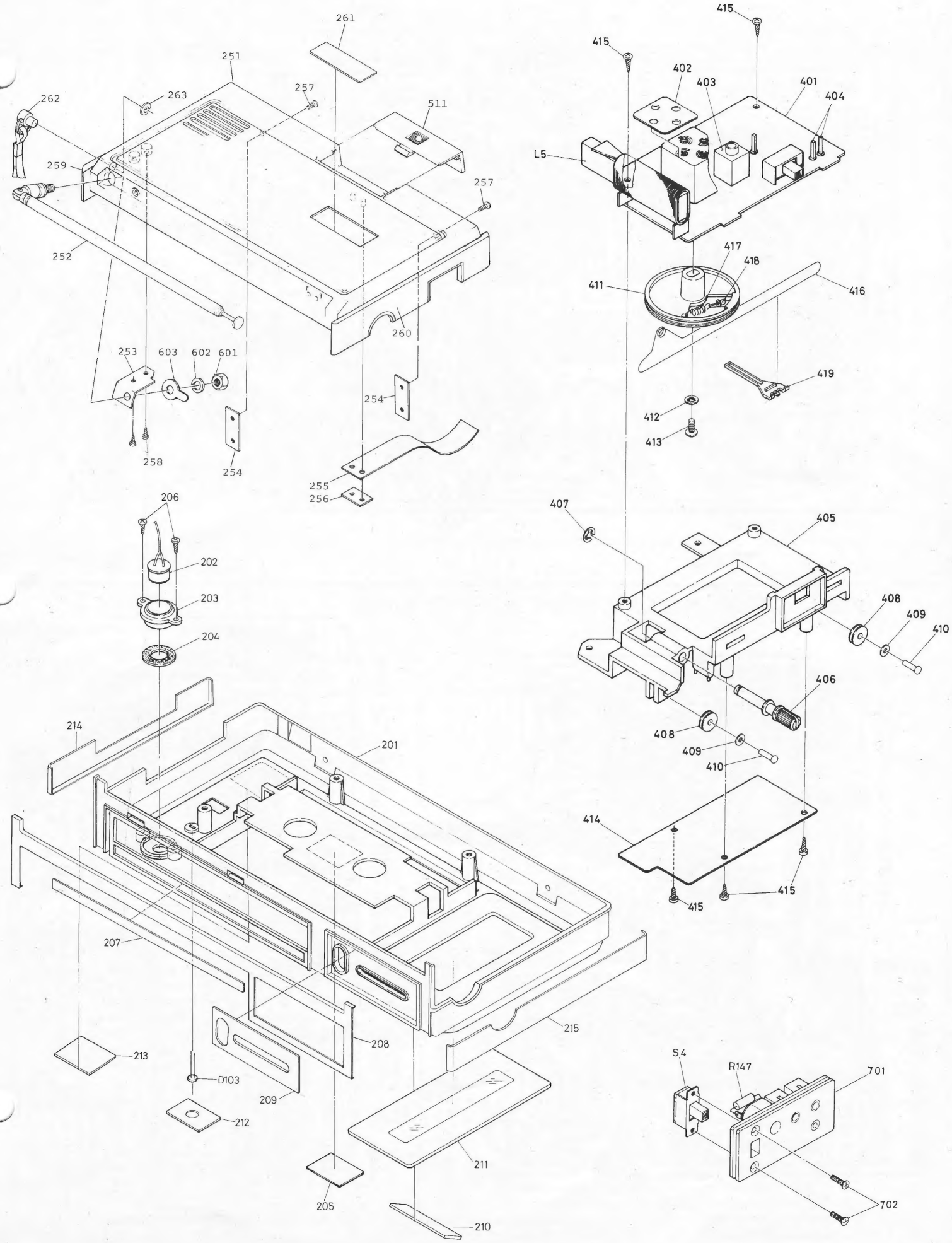
FM IF S curve



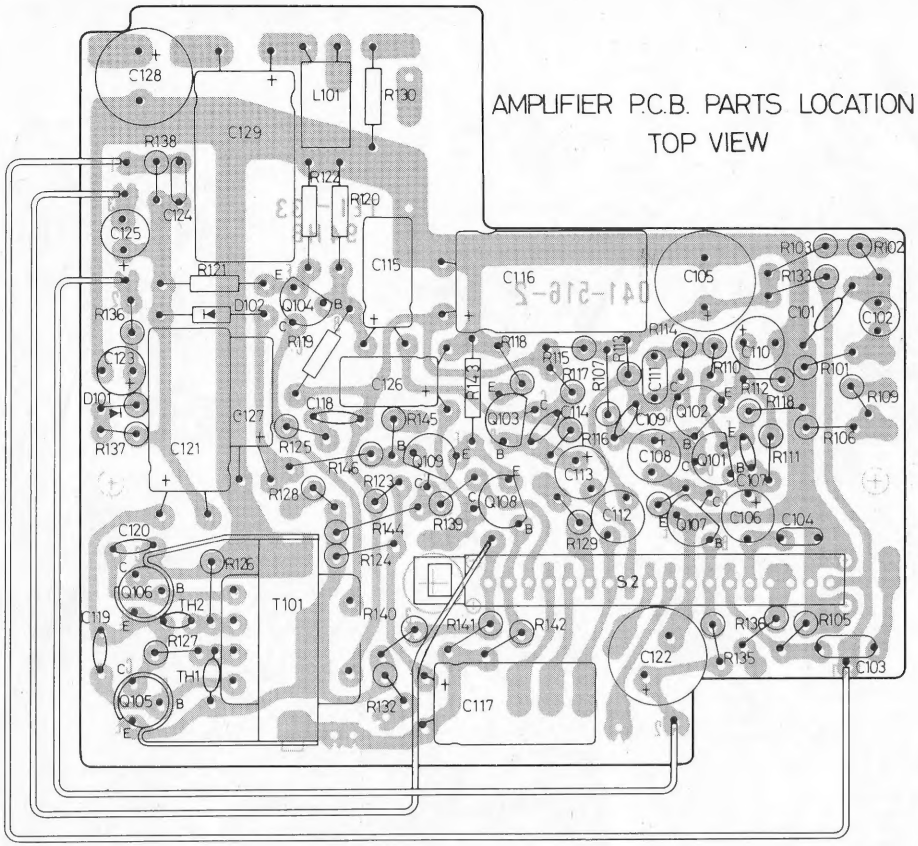
MECHANISM EXPLODED VIEW



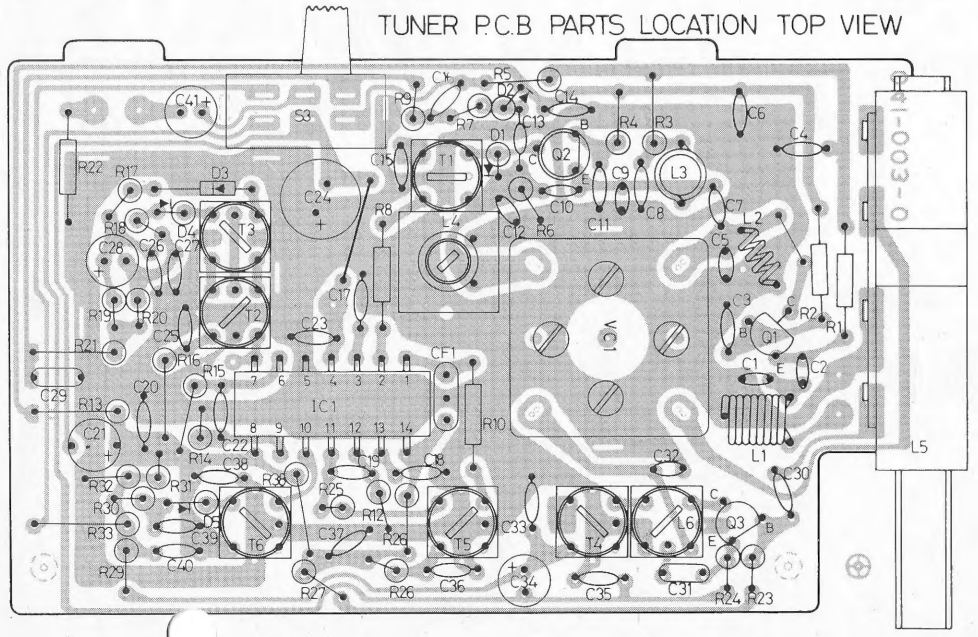
CABINET EXPLODED VIEW



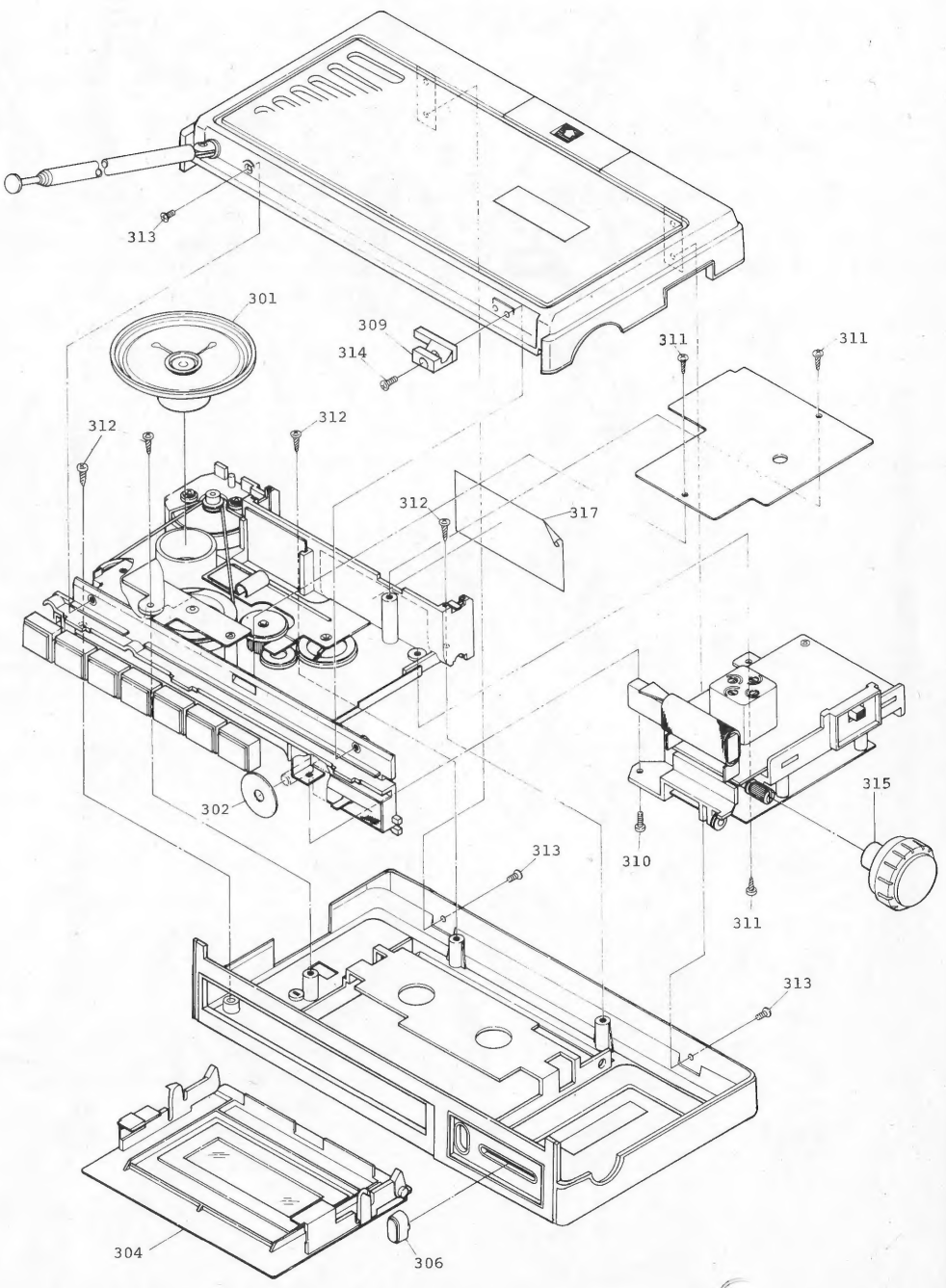
AMPLIFIER P.C.B. PARTS LOCATION TOP VIEW



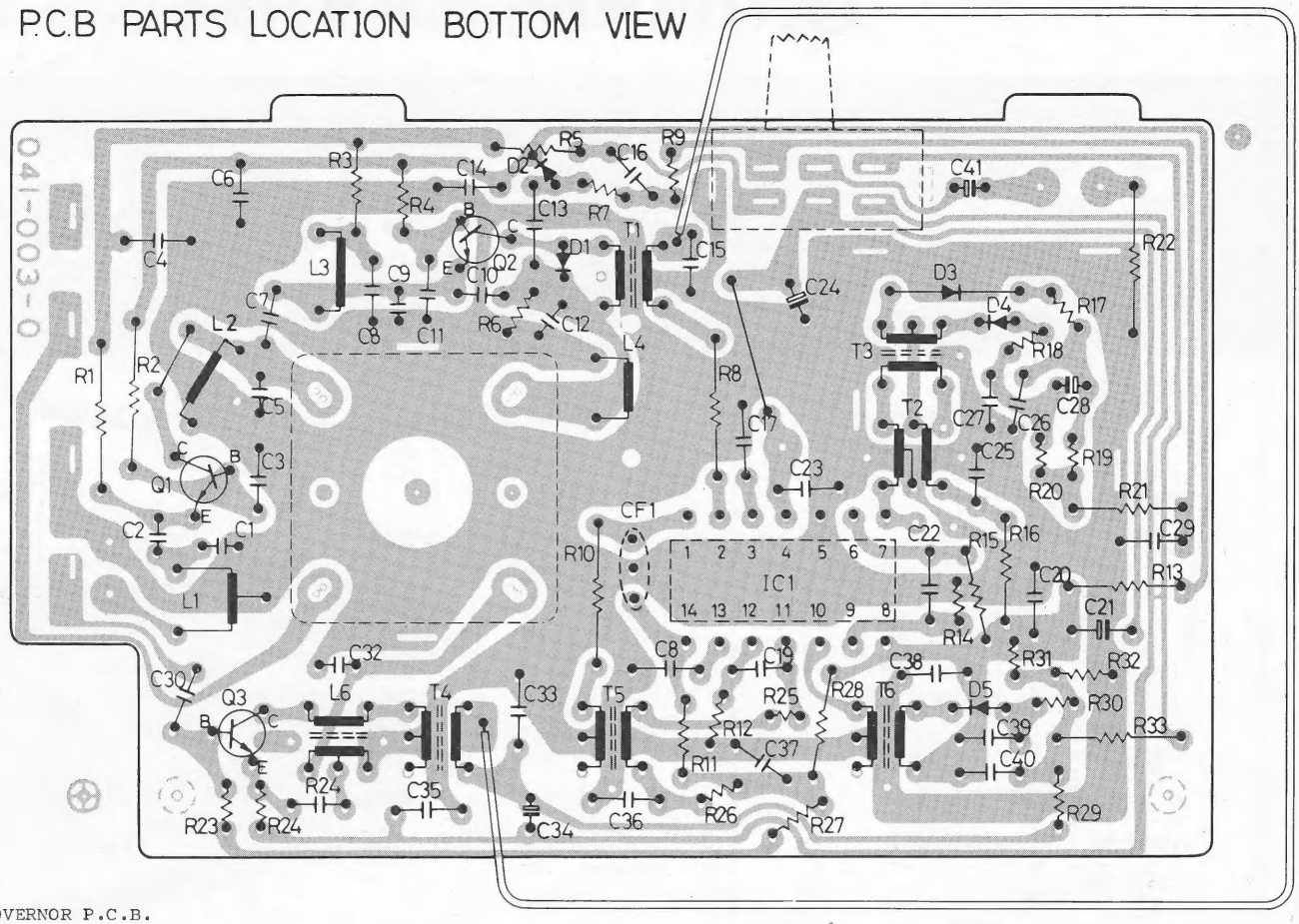
TUNER P.C.B PARTS LOCATION TOP VIEW



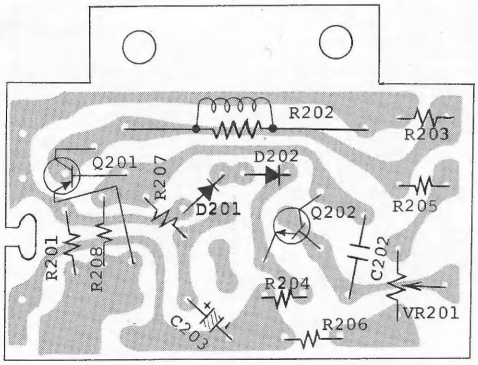
EXPLODED VIEW



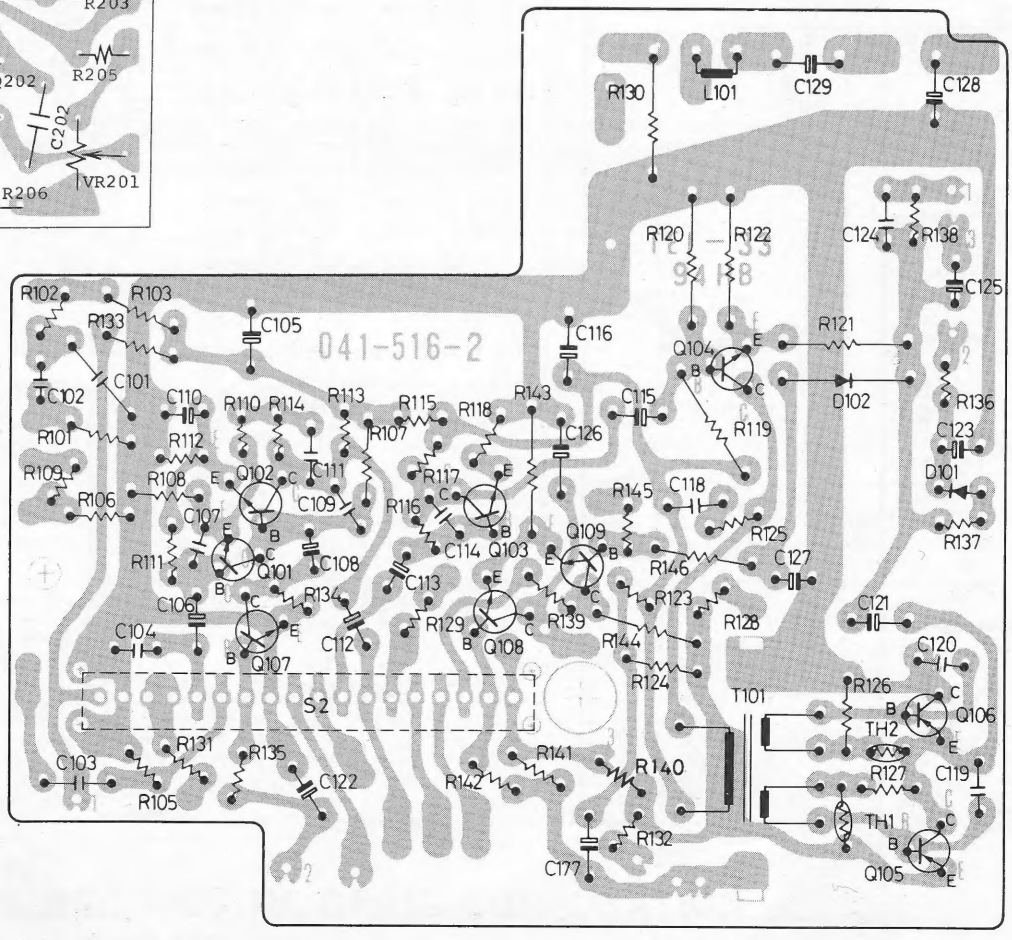
TUNER P.C.B PARTS LOCATION BOTTOM VIEW



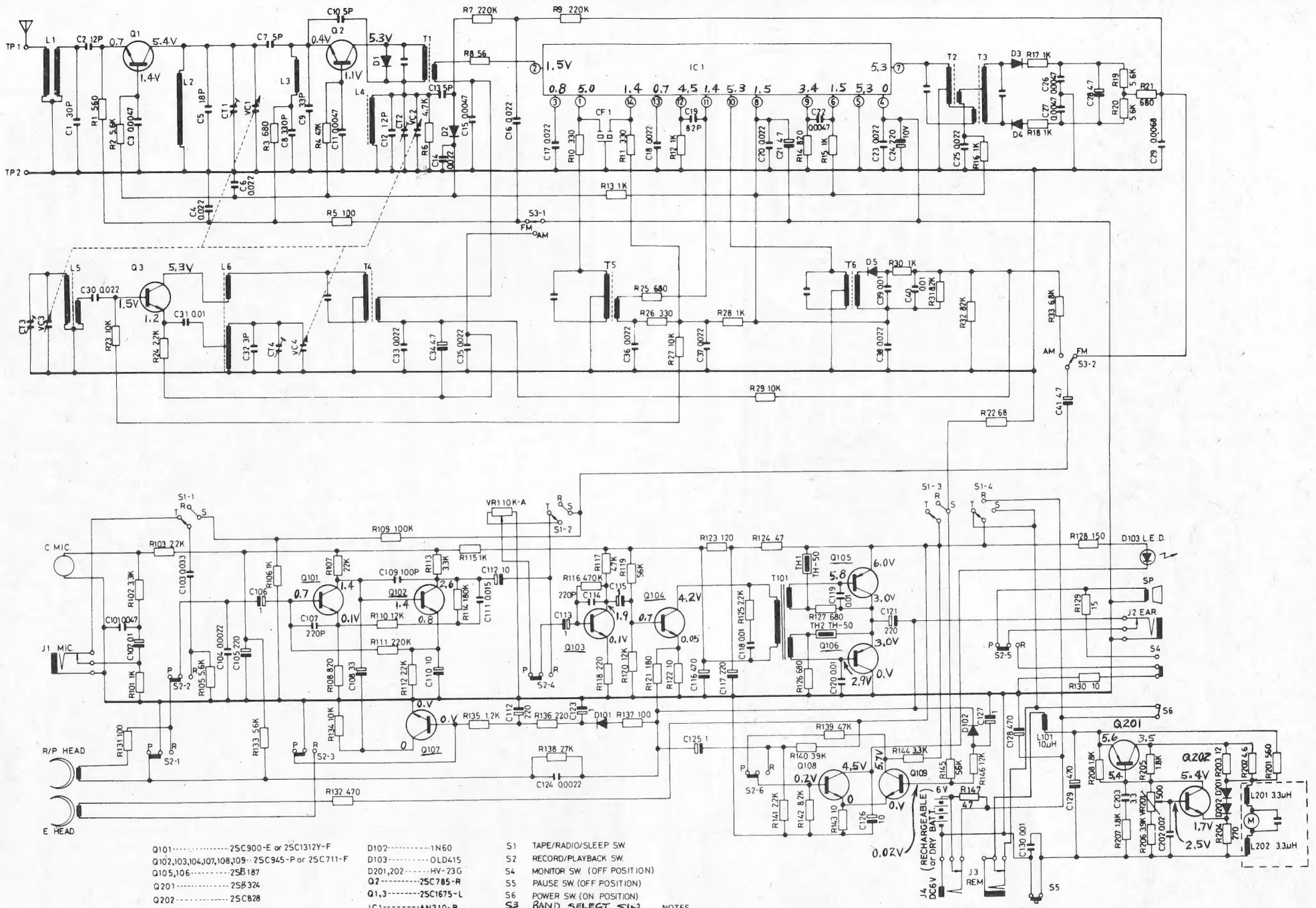
GOVERNOR P.C.B.



AMPLIFIER P.C.B. PARTS LOCATION BOTTOM VIEW



SCHEMATIC DIAGRAM



Q101 ---------- 2SC900-E or 2SC1312Y-F
Q102,103,104,107,108,109 ---- 2SC945-P or 2SC711-F
Q105,106 ---------- 2SB187
Q201 ---------- 2SB324
Q202 ---------- 2SC828
D101 ---------- WG1010AS

D102 ---------- 1N60
D103 ---------- OLD415
D201,202 ------ HV-23G
Q2 ---------- 2SC785-R
Q1,3 -------- 2SC1675-L
IC1 -------- AN210-B
D1 ---------- HV-80
D2 ---------- ITT-410
D3,4,5 ------ 1N60

S1 TAPE/RADIO/SLEEP SW.
S2 RECORD/PLAYBACK SW.
S4 MONITOR SW. (OFF POSITION)
S5 PAUSE SW. (OFF POSITION)
S6 POWER SW. (ON POSITION)
S3 BAND SELECT SW

NOTES
1. ALL RESISTANCE VALUES ARE IN OHM. K = 1000 M = 1000K
2. ALL CAPACITANCE VALUES ARE IN P = $10^{-6}\mu$F.
3. VOLTAGES MEASURED FROM POINT INDICATOR TO CHASSIS GROUND WITH V.T.V.M. AT LINE VOLUME CONTROL MINIMUM AND NO SIGNAL.

(SPECIFICATIONS AND CIRCUITS SUBJECT TO CHANGE WITHOUT NOTICE FOR IMPROVEMENT.)

ALL RESISTORS ARE 1/4 WATT, UNLESS OTHERWISE SPECIFIED.

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